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Title	On three Braconid Parasites of the Soybean Pod Borer, <i>Grapholitha glycinivorella</i> MATSUMURA (Contributions to the Knowledge of the Braconid Fauna of Manchoukuo, 2)
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Instructions for use

ON THREE BRACONID PARASITES OF
THE SOYBEAN POD BORER,
GRAPHOLITHA GLYCINIVORELLA MATSUMURA
(CONTRIBUTIONS TO THE KNOWLEDGE OF THE BRACONID
FAUNA OF MANCHOUKUO, II*)

By

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(With one Textfigure)

Three species of *Braconidae* have recently been handed to the writer for identification. These are of great importance in connection with soybean production, parasiting on the pod borer, *Grapholitha glycinivorella* MATSUMURA**, which is a serious pest in Manchoukuo. Here the writer wishes to express his gratitude to Mr. I. OKADA who has obtained the specimens during his study of the pest in Manchoukuo and kindly presented them to the writer.

Subfamily *Cheloninae*

Genus *Chelonus* JURINE

Chelonus JURINE: in PANZER, Krit. Revis., II, p. 99 (1806).

Genotype—*Chelonus inanitus* (LINNÉ) (1767).

1. *Chelonus pectinophorae* CUSHMAN

Chelonella sp. KAMBE, Ann. Agr. Exp. Stat. Govern.-Gen. Chosen, V, No. 4, p. 204 (1930).

Chelonus (Chelonella) pectinophorae CUSHMAN, Proc. U. S. Nat. Mus., LXXXIX, p. 11, ♀ ♂ (1931); FAHRINGER, Opusc. bracon., III, p. 458, ♀ ♂ (1934).

Chelonella nitobei SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 74, ♀ ♂ (1932).

Chelonus pectinophorae WATANABE, Ins. Mats., X, p. 47 (1935); id., Jour. Facul. Agr., Hokkaido Imp. Univ., XLII, p. 72 (1937).

Host—Bred from larvae of *Grapholitha glycinivorella* MATSUMURA by R. KIMISHIMA at Kaigen, Manchoukuo.

Habitat—Manchoukuo (Kaigen: 4 ♀ ♀, 2 ♂ ♂, 8-14. VIII, 1937, R. KIMISHIMA).

* I: Ins. Mats., XII, No. 1, pp. 39-44 (1937).

** Dobutsugaku Zasshi [Zool. Mag. (Japan)], X, p. 127 (1898).

[Ins. Mats., Vol. XII, No. 2 & 3, March, 1938]

General Distribution: Japan; Formosa; Korea; China; Manchoukuo.

Genus *Phanerotoma* WESMAEL

Phanerotoma WESMAEL, Nouv. Mém. Acad. Sci. Bruxel., XI, p. 165 (1838).

Genotype—*Phanerotoma dentata* (PANZER) (1805).

2. *Phanerotoma planifrons* (NEES)

Stenophus planifrons NEES, Magaz. Ges. Naturf. Fr. Berlin, VII, p. 259, Pl. IV, fig. 3 (1813).

Chelonus planifrons NEES, Hymen. Ichneum. affin. Monogr., I, p. 281 (1834).

Phanerotoma planifrons MARSHALL, Spec. Hymén. Europe, IV, p. 381, ♀ ♂ (1889); LYLE, Entomologist, LVII, p. 102, fig. 2 (1924); FAHRINGER, Opusc. bracon., III, p. 573, ♀ ♂ (1934); WATANABE, Jour. Facul., Agr. Hokkaido Imp. Univ., XLII, p. 79 (1937).

Chelonus diversus WALKER, Cist. ent., I, p. 308, ♂ (1874).

Phanerotoma flavida ENDERLEIN, Ent. Mitt., I, p. 259, ♀ ♂ (1912).

Phanerotoma bicolor SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 81, ♀ (1932).

Phanerotoma grapholithae MUESEBECK, Proc. Ent. Soc. Washing., XXV, p. 50, ♀ ♂ (1933).

Phanerotoma formosana ROHWER, Proc. Ent. Soc. Washing., XXXVI, p. 45, ♂ (1934).

Based on the aspects described below the present specimens may be identified with this species:—

♀. Reddish yellow; antennae fuscous at the apex; stemmaticum black; tips of the mandibles ferruginous; meso- and metanotum at the hind margin brownish; two basal tergites pale yellow; wings hyaline, with a fine cloud below the stigma; stigma brown, pale at the base.

Head transverse, excavated behind; frons and vertex rugose; clypeus smooth and shining, the apical margin provided with three minute teeth medially; antennae shorter than the body, 23-jointed, slightly dilated beyond the middle. Thorax as rugose as the head. Propodeum finely reticulate-rugose, with an irregular transverse carina at the middle. Middle tibiae externally gibbous. Radius of the fore wing inserted at the apical third of the stigma: 1st abscissa of the radius as long as or a little longer than half the length of the 2nd which is a little longer than the 2nd intercubitus; 3rd abscissa of the radius slightly curved, sometimes nearly straight; 1st intercubitus almost straight; recurrent nervure interstitial; nervulus postfurcal by its own length. Radial cell of the hind wing finely geminated by a transverse nervure; 1st basal cell slender, 2 times as long as the 2nd basal cell. Abdomen subdepressed, divided into three segments; 1st and 2nd tergites transverse, the 1st with two convergent carinae at the base; 3rd tergite longer than broad; 1st and 2nd tergites and the 3rd at the base longitudinally striate-rugose, the rest finely rugose. Ovipositor subexserted.

Length, 3.5–4.5 mm.

♂. Closely resembles the female in general structure and colour, but the

antennae are long and slender, 23-jointed, not dilated beyond the middle.

Length, 3-4 mm.

Host—Bred from larvae of *Grapholitha glycinivorella* MATSUMURA by I. OKADA at Kaigen, Ryôyô and Eikô in Manchoukuo.

Habitat—Manchoukuo (Kaigen: 1 ♀, 21. VIII, 1935; 1 ♂, 28. VII, 1936; 2 ♀ ♀, 2 ♂ ♂, 1. VIII, 1936; 2 ♀ ♀, 2 ♂ ♂, 7. VIII, 1936; 3 ♀ ♀, 2 ♂ ♂, 10. VIII, 1936; 2 ♀ ♀, 23. VIII, 1936; 1 ♂, 27. VII, 1937; 1 ♀, 5. VIII, 1937; 1 ♀, 10. VIII, 1937; 1 ♀, 12. VIII, 1937; 2 ♀ ♀, 19. VIII, 1937; 2 ♀ ♀, 19. IX, 1937, I. OKADA. Ryôyô: 1 ♂, 5. VIII, 1937; 1 ♂ 10. VIII, 1937; 1 ♀, 11. VIII, 1937, I. OKADA. Eikô: 1 ♀, 17. VIII, 1937; 1 ♀, 19. VIII, 1937, I. OKADA).

Gen. Distr.: Japan; Korea; Formosa; Manchoukuo; Europe; West and Central Asia; Siberia; North Africa; Ceylon.

Subfamily *Agathiinae*

Genus *Microdus* NEES

Microdus NEES, Magaz. Ges. Naturf. Fr. Berlin, VI, p. 184 (1812).

Genotype—*Microdus calculator* (FABRICIUS) (1789).

3. *Microdus glycinivorellae* sp. nov.

♀. Yellowish red; stemmaticum, tips of the mandibles, antennae except several basal joints and ovipositor-sheath black; propodeum fuscous on the basal half; wings hyaline; stigma and veins dark brown; abdomen somewhat darkened apically.

Head strongly transverse, slightly excavated behind; vertex smooth and shining with pubescence; face normal, not rostriform, covered with fine hair-punctures; distance between the ocelli 2 times as long as the diameter of an ocellus; antennae a little shorter than the body, 35-jointed. Thorax rather stout, about as long as the head, minutely punctate and shining; parapsidal furrows slightly crenulate; mesopleura possessing a crenulate furrow. Propodeum coarsely reticulate-rugose, not distinctly areolated, with the median area slender and rugose within; spiracles small, oval. Radial cell of the fore wing very narrow, lanceolate, nearly reaching the middle of the metacarpus; 1st abscissa of the radius very short; 2nd cubital cell triangular, subpetiolate; 1st cubital cell confluent with the 1st discoidal cell; recurrent nervure curved outwardly; nervulus shortly postfurcal; 1st brachial cell open at the apex. Radial cell of the hind wing subpetiolate; 2nd basal cell about half the length of the 1st basal cell; a transverse nervure running from the basal third of the nervellus to the hind margin of the wing. Hind coxae smooth and shining; hind tibial

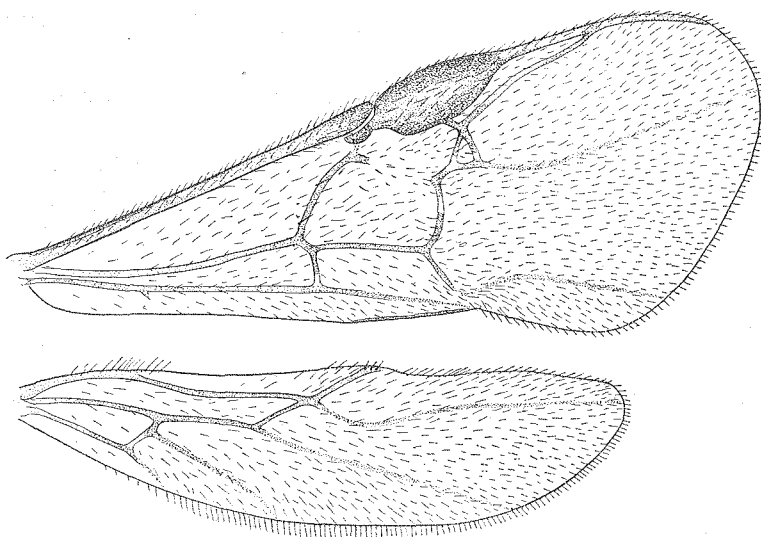


Fig. 1

Wings of *Microdus glycinivorellae* sp. nov. (♀)

spurs about one-third the length of the metatarsus; tarsal claws simple, not cleft. Abdomen broadly sessile; 1st tergite longer than broad at the apex, gradually narrowed towards the base, closely longitudinally striate; 2nd tergite smooth and shining, with a shallow median transverse impressed line, and the remaining tergites entirely smooth and shining. Ovipositor a little shorter than the body, 4.5 mm. in length, the sheath uniformly covered with black bristles. Length, 5 mm.

♂. Differs from the female, apart from usual sexual differences, in the following points:—

(1) Antennae as long as the body, 36-jointed. (2) Propodeum more distinctly areolated and more coarsely rugose than that of the female. (3) Second cubital cell smaller than that of the female, subpetiolate, while in one specimen (1 ♂, 23. VIII, 1937) it is almost obsolete on account of the coalescence of the 1st and 2nd intercubital nervures. (4) Third tergite on the apical third and the following tergites dark brown to black.

Length, 4.5–5 mm.

Host—Bred from larvae of *Grapholitha grycinivorella* MATSUMURA by I. OKADA at Eikō in Manchoukuo.

Holotype (♀): Eikō, 18. VIII, 1937, I. OKADA. **Allotype** (♂): Eikō, 21. VIII, 1937, I. OKADA. **Paratypes**: Eikō, 1 ♀, 20. VIII, 1937, 1 ♂, 18. VIII,

1937, 1 ♂, 23. VIII, 1937, I. OKADA.

Habitat—Manchoukuo (Eikô).

The type-specimens are in the Entomological Institute of the Hokkaido Imperial University, Sapporo, Japan.

Remarks—This species resembles *Microdus diversus* (MUESEBECK)*, a parasite of *Grapholitha molesta* BUSCK in Japan, but is especially distinguishable from the latter by the structure of the abdomen and by the colour of the body.

摘 要

ダイツシンクヒガに寄生する 3 種のコマユバチに就いて

満洲に於いてダイツシンクヒガの幼蟲に次の 3 種 (1 新種を含む) のコマユバチの寄生することを岡田一次氏に依つて確められたので、その分類學的研究を公表する次第である。尙現地に於ける實驗並びに觀察の結果は岡田氏が稿を改めて發表する筈である。

	採集地
1. <i>Chelonus pectinophorae</i> CUSHMAN アカミムシコウラコマユ	開 原
2. <i>Phanerotoma planifrons</i> (NEES) ヒメキイロコウラコマユ	開 原・遼 陽・營 口
3. <i>Microdus glycinivorellae</i> WATANABE (sp. nov.) ダイツシンクヒキイロコマユ	營 口

因に本文は南滿洲鐵道株式會社農林課より北海道帝國大學農學部昆蟲學教室へ委託の「ダイツシンクヒガ防除研究」の業績 I 部である。

* Proc. Ent. Soc. Washing., XXXV, p. 48, ♀ (1933) (as *Bassus diversus*).